

Notice of Allowability

Application No.

10/700,549

Examiner

Nancy Bitar

Applicant(s)

WU ET AL.

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 11/05/2003.
2. ☒ The allowed claim(s) is/are 1-15.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/Q8), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

JOSEPH MANCUSO
SUPERVISORY PATENT EXAMINER

DETAILED ACTION**REASONS FOR ALLOWANCE**

1. The following is an examiner's statement of reasons for allowance: None of the prior art teaches or suggests the claimed invention. While Lou et al. and Wu et al. each teaches the quantization **errors** in the **discrete cosine transform** domain achieve the smallest visual degradation. Embedding the watermark within the image by introducing **reduced** distortion into transformed coefficients provides the **robustness for the watermark detection without degrading the image quality**. Besides, the proposed method does not require the original image to detect the watermark; neither teaches or suggests adding the parameter combination with the least error and the second threshold (image robustness) to replace a DCT parameter of the subband image position in the embedded block when the least error is less than the first threshold (image distortion) and the series of the binary watermark image is one of 1 or 0; and subtracting the second threshold from the parameter combination with the least error to replace a DCT parameter of the subband image position in the embedded block when the least error is than the first threshold and the series of the binary watermark image is one of 1 or 0, as variously required by the claimed invention. The Examiner finds no reason or motivation to combine the above references in an obviousness rejection thus placing the application in condition for allowance.

2. Claims 1-15 are allowed

3. The drawings were received on 11/05/2003.the Examiner accepts these

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drawings.

4. Any comments considered necessary by applicant must be submitted on later than the payment of the issue fee and to avoid processing delays should preferably accompany the issue fee. Such submissions should be clearly labeled, comments on statement of reasons for allowance.

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Lou et al (Robust Image watermark based on hybrid transformation, IEEE 2003) discloses watermarking based on DCT.

Wu et al (US 6,285,775) discloses watermarked digital image described in the frequency domain including the DCT.

Hsieh et al (Image Refining Technique using Digital Watermarking, IEEE 2000) discloses the robustness of watermark depending on the parity bits of rearranged DCT coefficients in the lower frequency sub bands of quantized DCT .

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nancy Bitar whose telephone number is 571-270-1041. The examiner can normally be reached on Mon-Fri (7:30a.m. to 5:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mancuso can be reached on 571-272-7695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nancy Bitar

12/14/2006



JOSEPH MANCUSO
SUPERVISORY PATENT EXAMINER